

C3
C4

substantially no catalytic activity for a polyester polymerization; and
an organic compound component, said organic compound alone having
substantially no catalytic activity for a polyester polymerization,
wherein the combination of the metal-containing component and the organic
compound component produces the substantial catalytic activity.

REMARKS

Claims 1-50 are pending. Claims 1 and 3-49 will be pending upon entry of the amendments herein. Claims 1, 3-17, and 19-49 have been amended and Claims 2 and 50 have been canceled by way of the present amendment.

35 U.S.C. 112, 1st Paragraph, Rejections

Claims 3-48 were rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey that the inventor had possession of the claimed invention and as not being enabling. Specifically, the Examiner states that chemical structures are missing. Applicants respectfully disagree.

The structures of the 84 chemical formulae cited in the specification and claims are found in the specification in a last section entitled, "Amendments under Article 34," which was part of the PCT application and, hence, properly included in this U.S. application. This section also includes Claim 1 and specification amendments. Accordingly, the formulae have been properly disclosed. Nonetheless, for added clarity, the specification has been amended to insert the formulae on page 9.

Applicants have also amended the claims to insert the structures of the cited formulae for the Examiner's convenience.

35 U.S.C. 112, 2nd Paragraph, Rejections

Claims 1-50 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Citing Ex parte Slob, 157 USPQ 172 (Pat. Office Bd.App. 1968), the Examiner has rejected Claims 1-3 and 49-50 as containing strictly functional language.

Applicants have amended Claims 1 and 49 to include recitations of Claims 2 and 50, respectively.

In Slob, a claimed “liquefiable substance” was rejected as being too broad and indefinite for claiming only physical characteristics, not the composition of the substance. Slob at 173.

Amended Claims 1 and 49 are not indefinite because, unlike the composition in Slob, the presently claimed composition specifically recites a “polyester polymerization catalyst.” Moreover, amended Claims 1 and 49 positively recite the presence of at least one metal-containing component and an organic compound component. Thus, Applicants respectfully request that this rejection be withdrawn.

Several suggestions were made regarding preferred language for Claims 1-4, 6-17, 19-24, and 26-49. Applicants have amended the claims to include the suggested amendments, with the following exceptions. In Claims 3, 4, and 24, a single compound may comprise either or both of the recited groups, hence, the claim language “and/or.” Claims 3 and 4 have been amended to clarify this feature. Claim 24 is believed to clearly recite this feature as is. In Claims 26-28 and 32, “Y” was objected to as having a meaning repugnant to the usual meaning “yttrium.” However, “Y” has another usual meaning as a variable, as in these claims. The definition in the specification and claims and the presence of the similar variable “X” make it clear that “Y” is being used as a variable, not to represent yttrium.

Accordingly, the 112, 2nd paragraph, rejections are overcome.

IDS Objection

The IDS was objected to as not including either the cited documents or the source publication data. A new IDS is submitted herewith correcting the objected-to items. Specifically, copies of JP S49-32676(B), JP S46-41031(B), and an “Experimental Results” report are submitted with the IDS.

The “Experimental Results” report describes results of Applicants’ experiments testing the performance of catalysts disclosed in JP S49-32676(B) and JP S46-

41031(B). In the new IDS, source data, including the date of the experiments and the experimenters' names, are provided. Applicants believe that the "Experimental Results" may be material to patentability under 37 C.F.R. 1.56 and therefore submit it to the Examiner for consideration. This submission, however, should not be deemed an admission of materiality.

Accordingly, Applicants respectfully submit that the objection is overcome.

CONCLUSION

Applicants submit that Claims 1 and 3-49 are now in condition for allowance and an early and favorable action to that effect is respectfully requested.

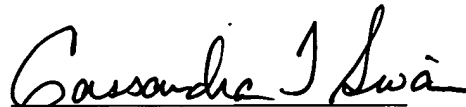
The Examiner is invited to contact the undersigned at 202-220-4200 to discuss any information concerning this application.

The Office is hereby authorized to charge any fees under 37 C.F.R. 1.16 or 1.17 or credit any overpayment to Kenyon & Kenyon Deposit Account No. 11-0600.

Respectfully submitted,

Date: January 21, 2003

By:


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MARKED-UP COPY OF AMENDMENTS

IN THE SPECIFICATION

Please amend the specification as shown in the first section of this amendment.

IN THE CLAIMS

Please cancel Claims 2 and 50 without prejudice or disclaimer.

Please amend Claims 1, 3-17, and 19-49 as follows:

1. (Amended) A polyester polymerization catalyst, comprising:
at least one metal-containing component selected from the group consisting of
metals and metal compounds, wherein the metal-containing component contains no
antimony or germanium; and
an organic compound component,
[containing no antimony or germanium whose] wherein an activity parameter
(AP) of the catalyst fulfills Formula [[1]] (1) shown below, [and the thermal stability
degree (TD) of a polyethylene terephthalate polymerized using which fulfills Formula [2]
shown below without removing or inactivating said catalyst:]
$$[[1]] (1) AP (min) < 2T(min)$$

[wherein] where AP is a time (min) required for a polymerization using the catalyst at
275°C under reduced pressure of 0.1 Torr to obtain a polyethylene terephthalate (PET)
whose intrinsic viscosity is 0.5 dl/g[.] and T is an AP observed when using antimony
trioxide as [a] the catalyst[.], the [The] added amount of antimony trioxide [is] being 0.05
mol% as antimony atom based on an acid component in the PET [a resultant
polyethylene terephthalate;], and[.]
wherein the PET polymerized using the catalyst has a thermal stability degree
(TD) which fulfills Formula (2) shown below without removing or inactivating said
catalyst.

[[2]] (2) TD (%)<25

[wherein] where TD is a % reduction in the intrinsic viscosity after keeping 1g of PET, whose initial intrinsic viscosity was 0.6 dl/g, in a glass tube as melt state under a nitrogen atmosphere at 300°C for 2 hours, after drying the PET at 130°C for 12 hours in vacuum.

3. (Amended) The polyester polymerization catalyst according to Claim [2] 1 wherein said organic compound component is at least one compound [selected from the group of the compounds] containing at least one moiety selected from the group consisting of [the moieties represented by] Formula 1 [and/or] and Formula 2:

(Formula 1)

Ar-O-

(Formula 2)

Ar-N <

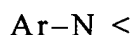
wherein Ar represents an aryl group.

4. (Amended) A polyester polymerization catalyst comprising:
at least one metal-containing component selected from the group consisting of metals [and/or] and metal compounds, wherein said metal-containing component comprises [comprising] no antimony [nor] or germanium; and
an organic compound component, wherein said organic compound component is at least one compound [selected from the group of the compounds] containing at least one moiety selected from the group consisting of [the moieties represented by] Formula 1 [and/or] and Formula 2:

(Formula 1)

Ar-O-

(Formula 2)



wherein Ar represents an aryl group.

5. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of an [alkaline] alkali metal, an [alkaline] alkali earth metal, [or] and a compound thereof.
6. (Amended) The polyester polymerization catalyst according to Claim 5 wherein said [alkaline] alkali metal or [alkaline] alkali earth metal is at least one selected from the group consisting of Li, Na, K, Rb, Cs, Be, Mg, Ca, Sr and Ba.
7. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Al, Ga, Tl, Pb, Bi and a compound thereof.
8. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Tl, Pb, Bi and a compound thereof.
9. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Cr, Ni, Mo, Tc, Re and a compound thereof.
10. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Cr, Ni and a compound thereof.

11. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Sc, Y, Zr, Hf, V and a compound thereof.

12. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Sc, Y, Zr, Hf and a compound thereof.

13. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Ru, Rh, Pd, Os, Ir, Pt and a compound thereof.

14. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Ru, Pd and a compound thereof.

15. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Cu, Ag, Au, Cd, Hg and a compound thereof.

16. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Cu, Ag and a compound thereof.

17. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of lanthanide [Lanthanoid] metals and compounds thereof.

19. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of In and a compound thereof.

20. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Mn, Co, Zn and a compound thereof.

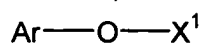
21. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Fe, Nb, Ta, W and a compound thereof.

22. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Fe and a compound thereof.

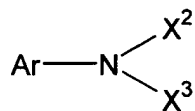
23. (Twice Amended) The polyester polymerization catalyst according to Claim 4 wherein said metal-containing component is at least one selected from the group consisting of Si, Te, B and a compound thereof.

24. (Thrice Amended) The polyester polymerization catalyst according to Claim 4 wherein each of the compounds containing the moieties represented by Formula 1 and/or Formula 2 is a compound containing the moieties represented by Formula 3 and/or Formula 4:

(Formula 3)



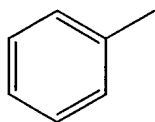
(Formula 4)



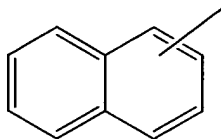
wherein Ar represents an aryl group, each of X^1 , X^2 and X^3 independently represents hydrogen, a hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group.

25. (Amended) The polyester polymerization catalyst according to Claim 24 wherein an Ar in said Formulae 3 and/or 4 is selected from the group consisting of the moieties represented by Formulae 5 to 12:

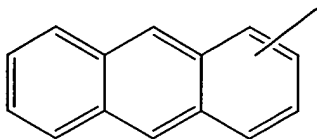
(Formula 5)



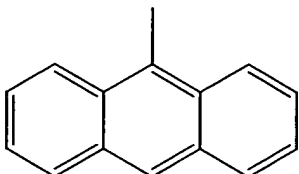
(Formula 6)



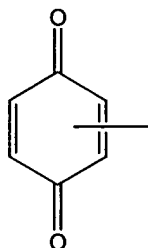
(Formula 7)



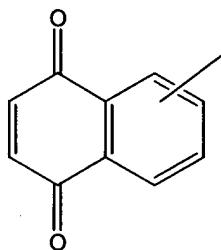
(Formula 8)



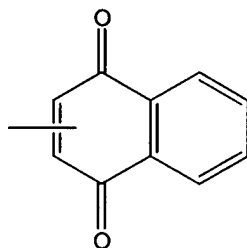
(Formula 9)



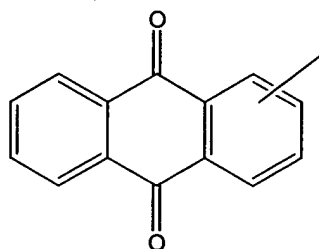
(Formula 10)



(Formula 11)

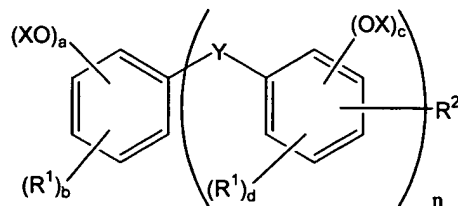


(Formula 12)

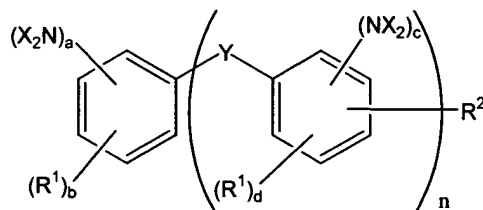


26. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a linear phenol compound and a linear aniline compound represented by Formulae 13 and 14 and [a derivative] derivatives thereof:

(Formula 13)



(Formula 14)

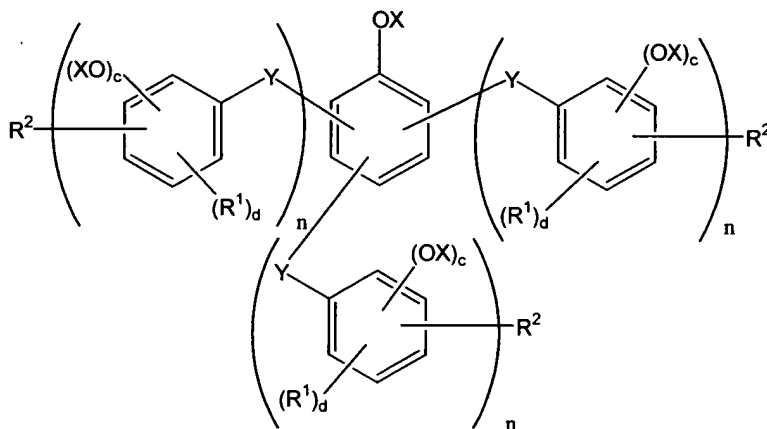


wherein each R^1 is the same or different and represents a [C1-C20] C_1 - C_{20} hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C_1 - C_{20} hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each R^2 is the same or different and represents hydrogen, a [C1-C20] C_1 - C_{20} hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C_1 - C_{20} hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C_1 - C_{20} hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C_1 - C_{20} hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each Y is the same or different and represents a direct bond, a [C1-C10] C_1 - C_{10} alkylene group, -(alkylene)-O-, -(alkylene)-S-, -O-, -S-, -SO₂-, -CO- or -COO-, n represents an [interger] integer of 1 to 100, each of a and c is an

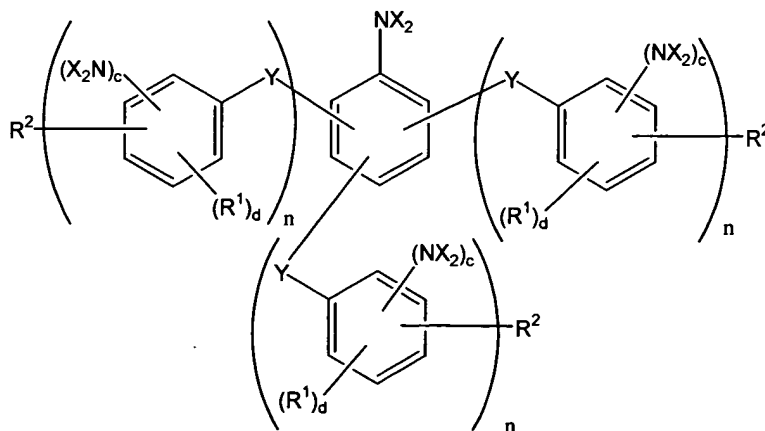
integer of 1 to 3, each of b and d is 0 or an integer of 1 to 3, provided that $1 \leq a+b \leq 5$, $1 \leq c+d \leq 4$, and each d [may be] is the same or different, [as well as a derivative] and derivatives thereof.

27. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a branched linear phenol compound and a branched linear aniline compound represented by Formulae 15 and 16 and [a derivative] derivatives thereof:

(Formula 15)



(Formula 16)

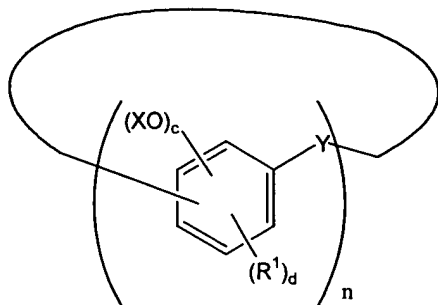


wherein each R^1 is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group

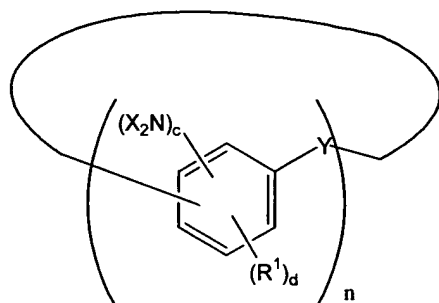
represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyano group, each R^2 is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyano group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each Y is the same or different and represents a direct bond, a [C1-C10] C₁-C₁₀ alkylene group, -(alkylene)-O-, -(alkylene) S-, -O-, -S-, -SO₂-, -CO- or -COO-, each n is the same or different and represents an [interger] integer of 1 to 100, each c is the same or different and represents an integer of 1 to 3, each d is the same or different and represents 0 or an integer of 1 to 3, provided that $1 \leq c+d \leq 4$, [as well as a derivative] and derivatives thereof.

28. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a cyclic phenol compound and a cyclic aniline compound represented by Formulae 17 and 18 and [a derivative] derivatives thereof:

(Formula 17)



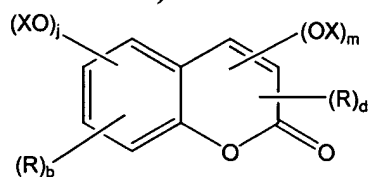
(Formula 18)



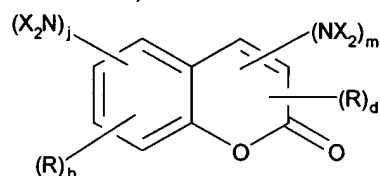
wherein each R^1 is the same or different and represents a [C1-C20] C_1-C_{20} hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C_1-C_{20} hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C_1-C_{20} hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C_1-C_{20} hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each Y is the same or different and represents a direct bond, a [C1-C10] C_1-C_{10} alkylene group, -(alkylene)-O-, -(alkylene)-S-, -O-, -S-, -SO₂-, -CO- or -COO-, n represents an [interger] integer of 1 to 100, c represents an integer of 1 to 3, d represents 0 or an integer of 1 to 3, provided that $1 \leq c+d \leq 4$, and each d [may be] is the same or different, [as well as a derivative] and derivatives thereof.

29. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a coumarine derivative represented by Formulae 19 and 20 [or] and a chromone derivative represented by Formulae 21 and 22:

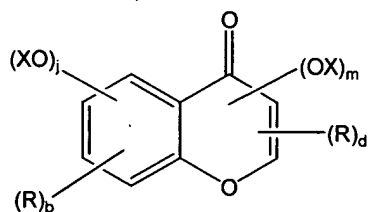
(Formula 19)



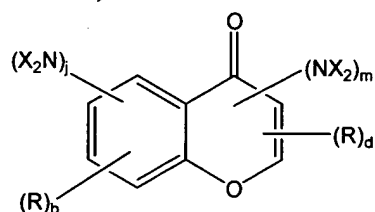
(Formula 20)



(Formula 21)



(Formula 22)

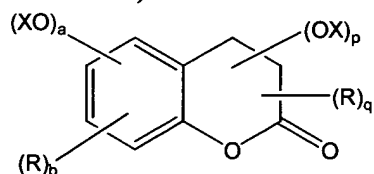


wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group

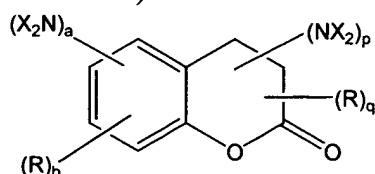
or a thiocyano group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of j and b is 0 or an integer of 1 to 3, each of m and d is 0 or an integer of 1 to 2, provided that $0 \leq j+b \leq 4$, $0 \leq m+d \leq 2$ and $1 \leq j+m \leq 5$, [as well as a derivative] and derivatives thereof.

30. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a dihydrocoumarine derivative represented by Formulae 23 and 24, a chromanone derivative represented by Formulae 25 and 26, [or] and an isochromanone derivative represented by Formulae 27 and 28:

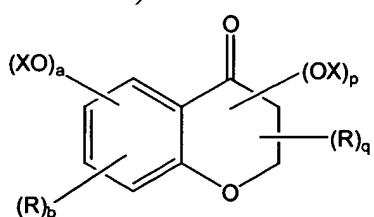
(Formula 23)



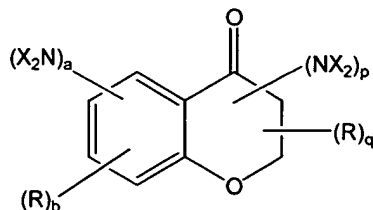
(Formula 24)



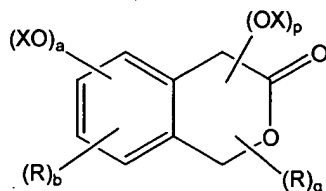
(Formula 25)



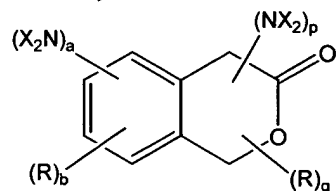
(Formula 26)



(Formula 27)



(Formula 28)

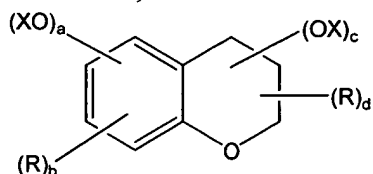


wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, a is an integer of 1 to 3, b is 0 or an integer of 1 to 3, and each of p and q is 0 or an integer of 1 to 2, provided that $1 \leq a+b \leq 4$ and $0 \leq p+q \leq 2$, [as well as a derivative] and derivatives thereof.

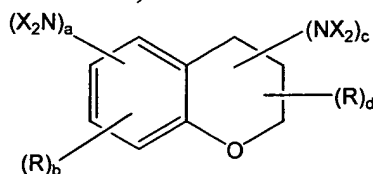
31. (Amended) The polyester polymerization catalyst according to Claim 24 wherein

a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a chroman derivative represented by Formulae 29 and 30 [or a] and an isochroman derivative represented by Formulae 31 and 32:

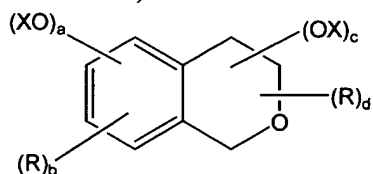
(Formula 29)



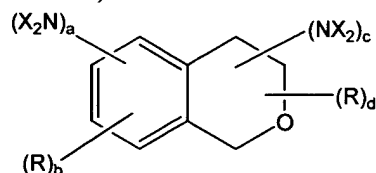
(Formula 30)



(Formula 31)



(Formula 32)

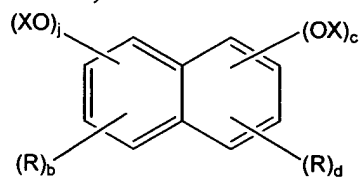


wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-

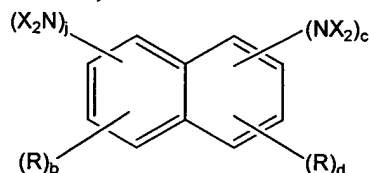
containing group or an ether [bond-containing] group-containing hydrocarbon group, a is an integer of 1 to 3, b is 0 or an integer of 1 to 3, each of c and d is 0 or an integer of 1 to 3, provided that $1 \leq a+b \leq 4$ and $0 \leq c+d \leq 3$, [as well as a derivative] and derivatives thereof.

32. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a naphthalene derivative represented by Formulae 33 and 34 [or] and a bisnaphthyl derivative represented by Formulae 35 and 36:

(Formula 33)



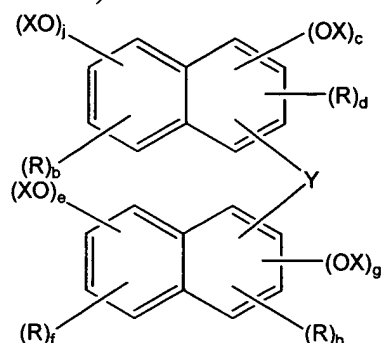
(Formula 34)



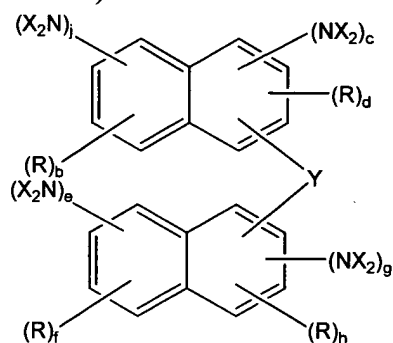
wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of j, b, c and d is 0 or an integer of 1 to 3, provided that $0 \leq j+b \leq 4$, $0 \leq c+d \leq 4$

and $1 \leq j+c \leq 6$,

(Formula 35)



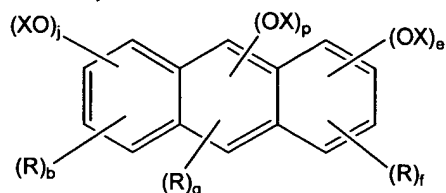
(Formula 36)



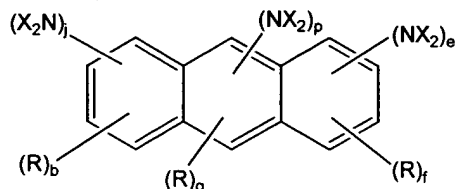
wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyano group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, Y represents a direct bond, a [C1-C10] C₁-C₁₀ alkylene group, -(alkylene)-O-, -(alkylene)-S-, -O-, -S-, -SO₂-, -CO- or -COO-, each of j, b, c, d, e, f, g and h is 0 or an integer of 1 to 3, provided that $0 \leq j+b \leq 4$, $0 \leq c+d \leq 3$, $0 \leq e+f \leq 4$, $0 \leq g+h \leq 3$ and $1 \leq j+c+e+g \leq 12$, [as well as a derivative] and derivatives thereof.

33. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of an anthracene derivative represented by Formulae 37 and 38:

(Formula 37)



(Formula 38)

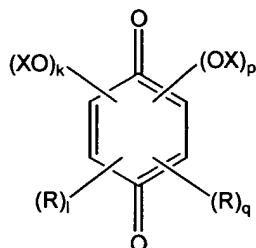


wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of j, b, e and f is 0 or an integer of 1 to 3, each of p and q is 0 or an integer of 1 to 2, provided that $0 \leq j+b \leq 4$, $0 \leq p+q \leq 2$, $0 \leq e+f \leq 4$ and $1 \leq j+p+e \leq 8$.

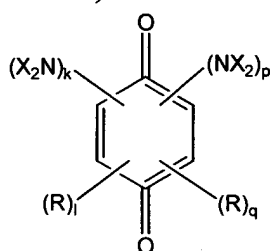
34. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a

compound selected from the group consisting of a benzoquinone derivative represented by Formulae 39 and 40:

(Formula 39)



(Formula 40)

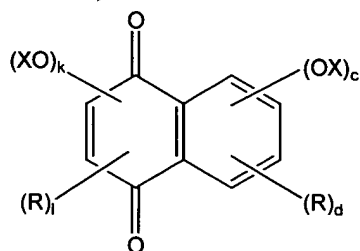


wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of k, l, p and q is 0 or an integer of 1 to 2, provided that $0 \leq k+l \leq 2$, $0 \leq p+q \leq 2$ and $1 \leq k+p \leq 4$.

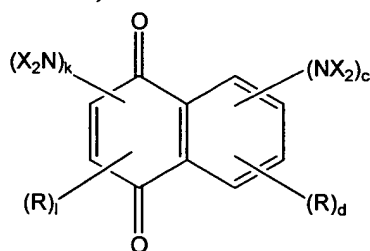
35. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a naphthoquinone derivative

represented by Formulae 41 and 42:

(Formula 41)



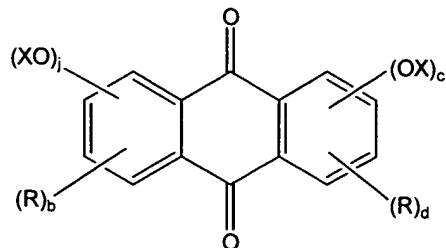
(Formula 42)



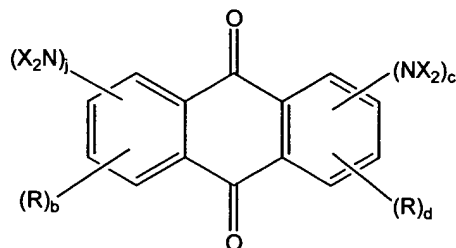
wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyno group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of k and l is 0 or an integer of 1 to 2, each of c and d is 0 or an integer of 1 to 3, provided that $0 \leq k+l \leq 2$, $0 \leq c+d \leq 4$ and $1 \leq k+c \leq 5$.

36. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of an anthraquinone derivative represented by Formulae 43 and 44:

(Formula 43)



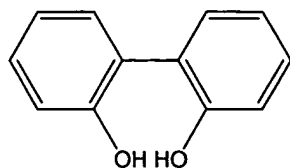
(Formula 44)



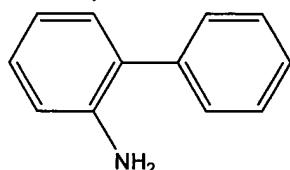
wherein each R is the same or different and represents a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, a halogen group, a carboxyl group or its ester, a formyl group, an acyl group, a group represented by (acyl)-O-, an amino group, a mono- or dialkylamino group, an amide group or its substituted form, a hydroxyl group, an alkoxyl group, an alkylthio group, a sulfonyl-containing group, a phosphoryl-containing group, a nitro group, a cyano group or a thiocyano group, each X is the same or different and represents hydrogen, a [C1-C20] C₁-C₂₀ hydrocarbon group, a hydroxyl group- or halogen group-carrying [C1-C20] C₁-C₂₀ hydrocarbon group, an acyl group, a sulfonyl-containing group, a phosphoryl-containing group or an ether [bond-containing] group-containing hydrocarbon group, each of j, b, c and d is 0 or an integer of 1 to 3, provided that $0 \leq j+b \leq 4$, $0 \leq c+d \leq 4$ and $1 \leq j+c \leq 6$.

37. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a 2,2'-bisphenol represented by Formulae 45 [or] and a 2-aminobiphenyl represented by Formula 46:

(Formula 45)



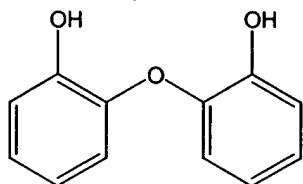
(Formula 46)



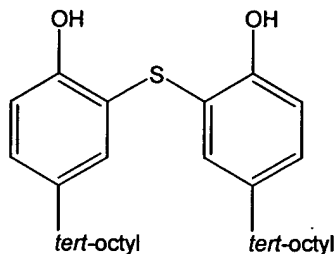
[as well as a derivative] and derivatives thereof.

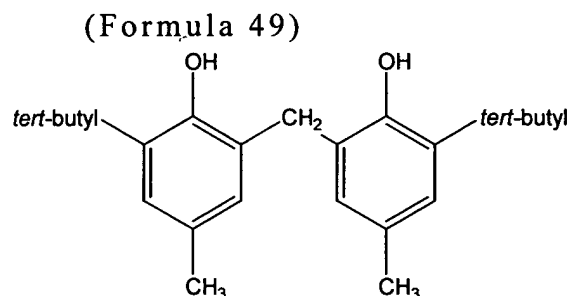
38. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a 2,2'-dihydroxydiphenylether represented by Formula 47, a 2,2'-thiobis(4-*t*-octylphenol) represented by Formula 48 [or] and a 2,2'-methylenebis(6-*t*-butyl-*p*-cresol) represented by Formula 49:

(Formula 47)



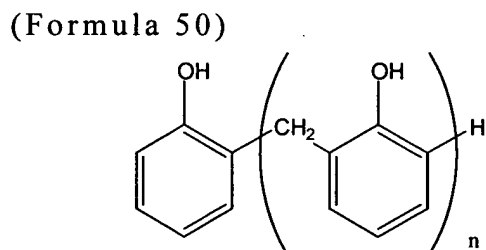
(Formula 48)



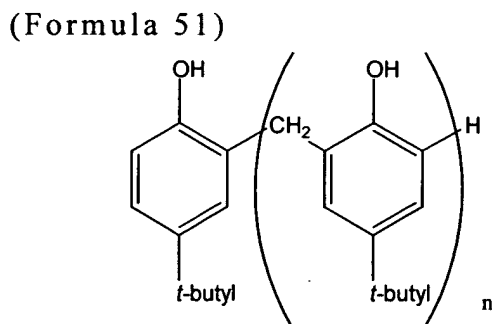


[as well as a derivative] and derivatives thereof.

39. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a methylene-bridged linear phenol compound represented by Formula 50 (mixture of dimer to 100-mer) [or] and a methylene-bridged linear p-t-butylphenol compound represented by Formula 51 (mixture of dimer to 100-mer):



wherein n is an integer of 1 to 99,

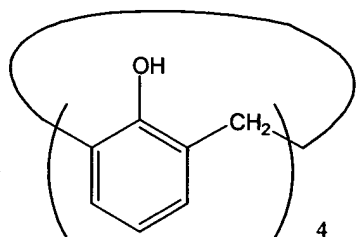


wherein n is an integer of 1 to 99, [as well as a derivative] and derivatives thereof.

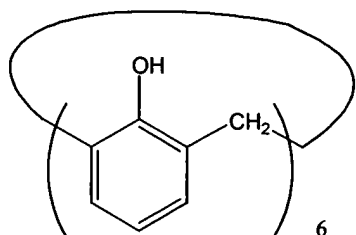
40. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a

compound selected from the group consisting of a Calix [4] arene represented by Formula 52, a Calix [6] arene represented by Formula 53, a Calix [8] arene represented by Formula 54, a p-t-butyl Calix [4] arene represented by Formula 55, a p-t-butyl Calix [6] arene represented by Formula 56 [or] and a p-t-butyl Calix [8] arene represented by Formula 57:

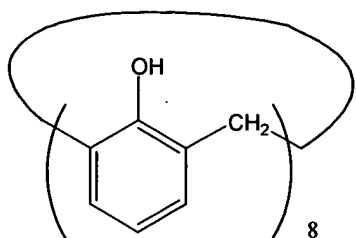
(Formula 52)



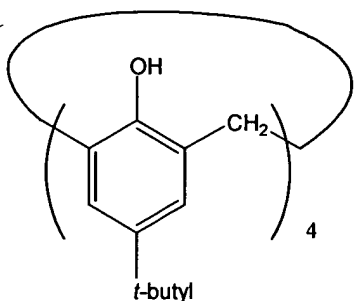
(Formula 53)



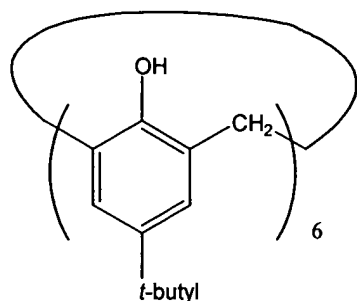
(Formula 54)



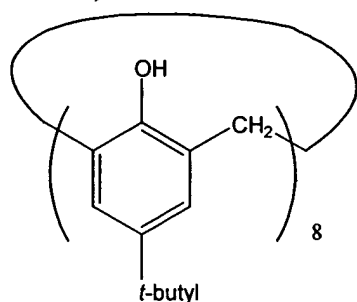
(Formula 55)



(Formula 56)



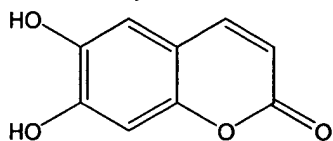
(Formula 57)



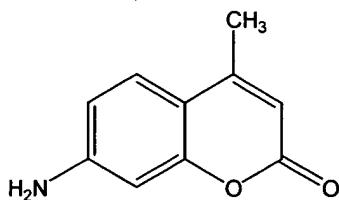
[as well as a derivative] and derivatives thereof.

41. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of an esculetin represented by Formula 58[,] and a 7-amino-4-methylcoumarine represented by Formula 59:

(Formula 58)



(Formula 59)

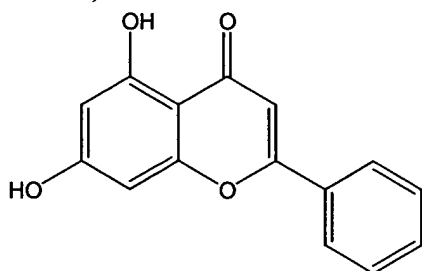


[as well as a derivative] and derivatives thereof.

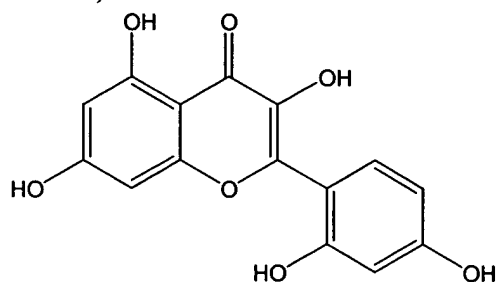
42. (Amended) The polyester polymerization catalyst according to Claim 24 wherein

a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a chrysin represented by Formula 60, a morin represented by Formula 61 [or] and a 2-aminochromone represented by Formula 62:

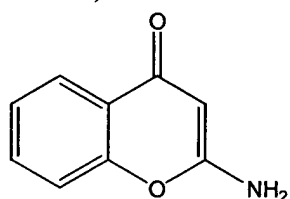
(Formula 60)



(Formula 61)



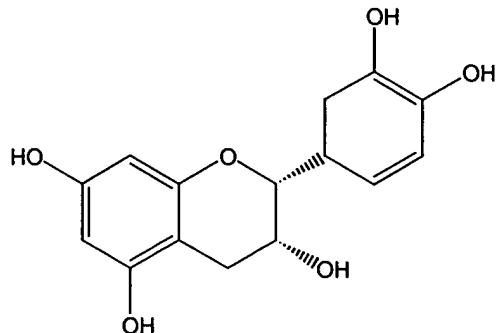
(Formula 62)



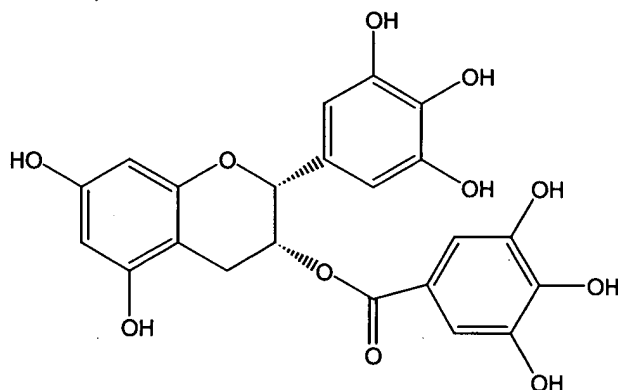
[as well as a derivative] and derivatives thereof.

43. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of an epicatechin represented by Formula 63 [or] and an epigallocatechin gallate represented by Formula 64:

(Formula 63)



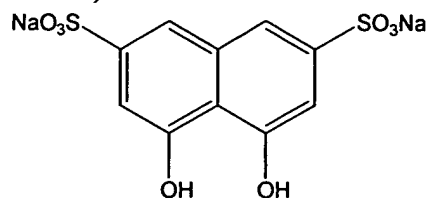
(Formula 64)



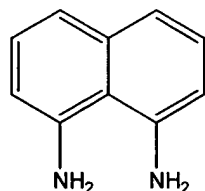
[as well as a derivative] and derivatives thereof.

44. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a disodium 4,5-dihydroxynaphthalene-2,7-disulfonate represented by Formula 65, a 1,8-diaminonaphthalene represented by Formula 66, a naphthol AS represented by Formula 67, a 1,1'-bi-2-naphthol represented by Formula 68 [or] and a 1,1'-binaphthyl-2,2'-diamine represented by Formula 69:

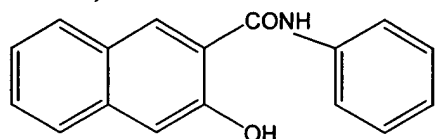
(Formula 65)



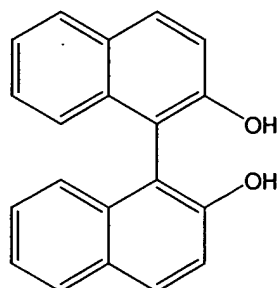
(Formula 66)



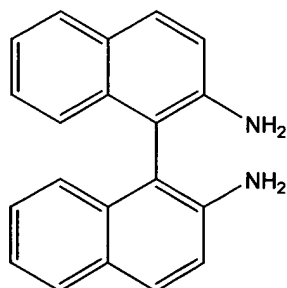
(Formula 67)



(Formula 68)



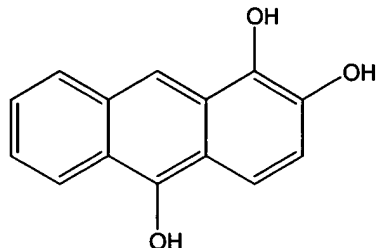
(Formula 69)



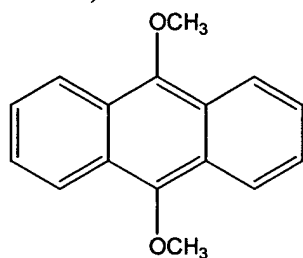
[as well as a derivative] and derivatives thereof.

45. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of an anthrarobin represented by Formula 70, a 9,10-dimethoxyanthracene represented by Formula 71 [or] and a 2-aminoanthracene represented by Formula 72:

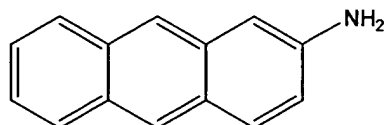
(Formula 70)



(Formula 71)



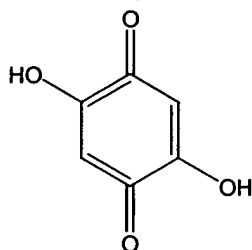
(Formula 72)



[as well as a derivative] and derivatives thereof.

46. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a 2,5-dihydroxybenzoquinone represented by Formula 73:

(Formula 73)

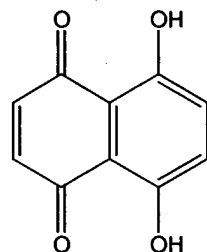


[as well as a derivative] and derivatives thereof.

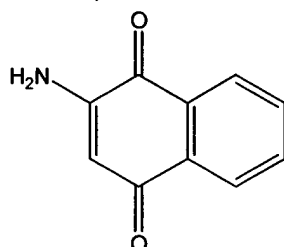
47. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a

compound selected from the group consisting of a 5,8-dihydroxy-1,4-naphthoquinone represented by Formula 74 [or] and a 2-aminonaphthoquinone represented by Formula 75:

(Formula 74)



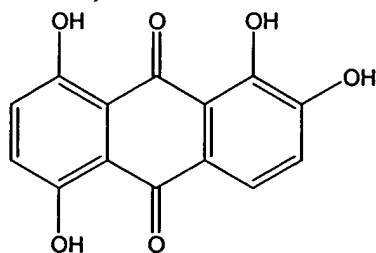
(Formula 75)



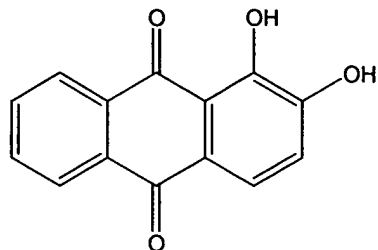
[as well as a derivative] and derivatives thereof.

48. (Amended) The polyester polymerization catalyst according to Claim 24 wherein a compound containing a structure represented by said Formulae 3 and/or 4 is a compound selected from the group consisting of a quinalizarin represented by Formula 76, an alizarin represented by Formula 77, a quinizarin represented by Formula 78, an anthrarufin represented by Formula 79, an emodine represented by Formula 80, a 1,4-diaminoanthraquinone represented by Formula 81, a 1,8-diamino-4,5-dihydroxyanthraquinone represented by Formula 82 [or] and an acid blue 25 represented by Formula 83:

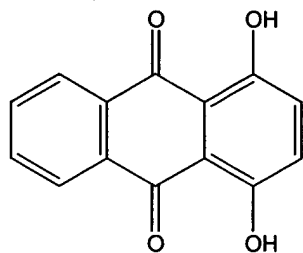
(Formula 76)



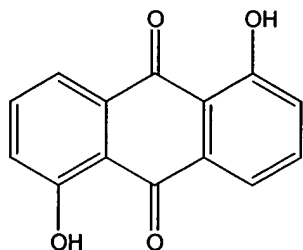
(Formula 77)



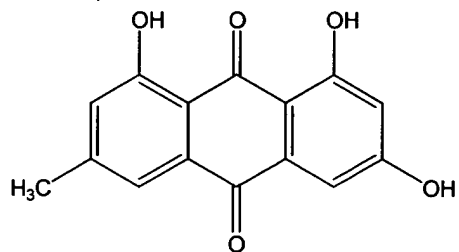
(Formula 78)



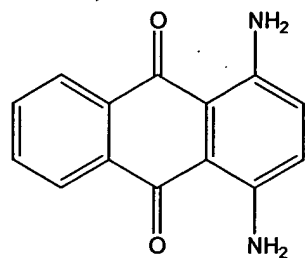
(Formula 79)



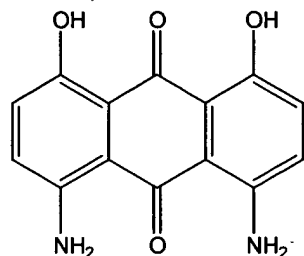
(Formula 80)



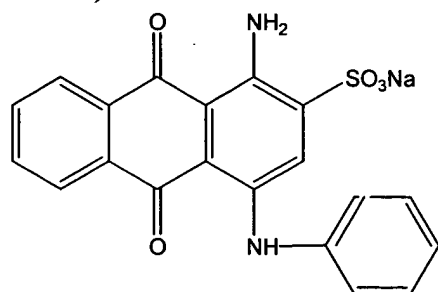
(Formula 81)



(Formula 82)



(Formula 83)



[as well as a derivative] and derivatives thereof.

49. (Amended) The polyester polymerization catalyst having a substantial catalytic activity and comprising:

[at least 2 components, the first of which has] at least one metal-containing component selected from the group consisting of metals and metal compounds, said metal-containing component alone having substantially no catalytic activity for a polyester polymerization; and

[the second of which has] an organic compound component, said organic compound alone having substantially no catalytic activity for a polyester polymerization, wherein the combination of the metal-containing component and the organic compound component produces the substantial catalytic activity.